



# Prospective risk analyses of the drug distribution process: Impact of information technologies

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## Introduction

Each step of the medication process can also be at the origin of potential errors.

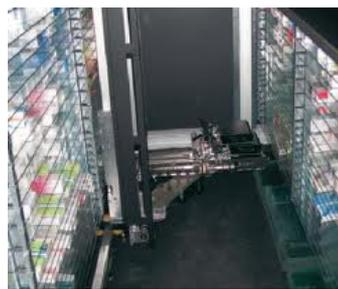
Global manual distribution

→ error rate = 1%

Information technology (IT) can improve the reliability and the efficiency.

That is why we decided to implement:

- 1) a robot for the distribution of the majority of references
- 2) a scanning system for the storage and distribution of items that cannot integrate the robot



## Objective

**What?**

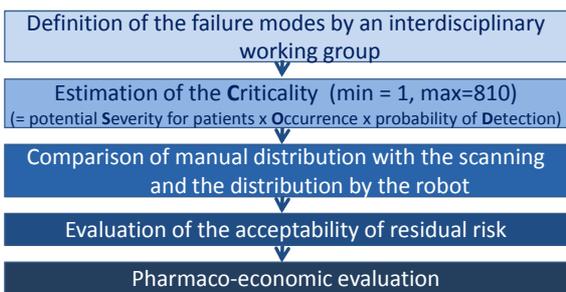
Evaluate the evolution of the risk in the process of drug distribution, before and after the introduction of information technology: scanning / robot

**How?**

By a prospective risk analysis.

## Method

FMECA (Failure Modes, Effects and Criticality analysis)



## Results

Failure modes with a criticality for manual distribution > 100

Activity	Failure mode	Manual	Scanning	Robot
Réception	Wrong product, not seen	140	35	35
	Mix of dosages	105	63	63
Storage	Stocked at the wrong place	105	21	7
Distribution	Command of products out of stock not seen	100	15	15
	Mix up in the same box: wrong product	112	56	56
	Wrong quantity	120	120	20
	Wrong product, not seen	112	56	7
Transports	0 > 100			
Returns	Restocked as sort criteria not respected (retired product)	112	42	42

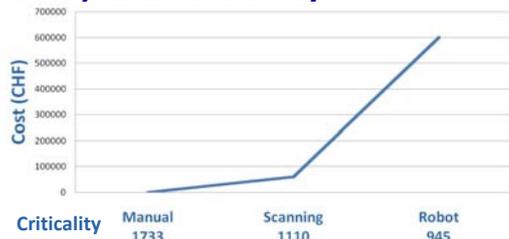
Failure modes	Total	Improved by the scanning or the robot	Criticality manual distribution > 100
Réception	9	3	2
Storage	4	3	1
Distribution	12	9	4
Transports	4	0	0
Returns	5	5	1

## Conclusion

The introduction of IT can reduce very significantly the criticality of the process of storage and distribution of drugs. The robot provides an additional gain of safety compared to scanning, but at the cost of a sizeable financial investment. This is offset by a significant improvement in efficiency that permits to reduce the number of collaborators making the distribution and to have a return on the investment in about 5 years.

Now the robot is in place, the measured error rate is about 0,25% and the distribution speed is 3 times superior to a manual distribution.

### Cost / total criticality



### Total criticality

